

What is Claimed is:

1. A lock for locking a door panel to a door frame, comprising:

5 a knob assembly comprising a front protective housing and a rear knob frame adapted for being mounting on a front and a rear side of said door panel respectively so as to define a lock cavity between said front protective housing and said second knob frame;

a door latch assembly comprising a latch actuation member transversely disposed within said lock cavity and a locking latch connected to said latch actuation member in a slidably movable manner;

10 an actuation unit mounted to said knob assembly to actuate said locking latch to slidably move between a locked position and an unlocked position, wherein in said locked position, said locking latch is received in said lock cavity for allowing a pivotal movement of said door panel with respect to said door frame, wherein in said unlocked position, said locking latch is slidably and outwardly extended for engaging with said
15 door frame so as to lock up with said door frame; and

a lock enhancing device, which comprises:

a reinforcing member for substantially mounting to said door panel between said front and said rear side thereof; and

20 a latch guider integrally extended from said reinforcing member within said lock cavity to couple with an inner end portion of said latch actuation member so as to substantially retain said latch actuation member within said lock cavity in position, wherein said latch guider is engaged between said first protective housing and said second knob frame so as to block a rotational movement of each of said first protective housing and said second knob frame with respect to said actuation unit.

25 2. The lock, as recited in claim 1, wherein said latch guider of said lock enhancing device has a coupling slot, having a predetermined length, longitudinally formed on an inner side thereof wherein an inner end portion of said latch actuation

member is movably coupled with said coupling slot in such a manner that a movement of said latch actuation member is substantially restricted by two ends of said coupling slot, so that said latch actuation member is retained in position in said lock cavity determined by a longitudinal length of said coupling slot.

5 3. The lock, as recited in claim 2, wherein said latch guider of said lock enhancing device has an inner surface of rectangular cross section, an outer convexly curved surface, and two side flat surfaces to define a semi-circular cross sectional shape of said latch guider, wherein a radius of curvature of a said curved outer surface is substantially equal to that of a side boundary of the lock cavity, so that said latch guider
10 is capable of being fittedly and securely engaged with the door panel.

 4. The lock, as recited in claim 3, wherein said rear knob frame of said knob assembly comprises a rear door knob adapted to bias against the rear side of the door panel, and a locking rotor, which is rotatably mounted on said rear door knob, and has a driving member extended to couple with said door latch assembly to actuate said locking
15 latch assembly, wherein said rear knob frame further comprises a reinforcing platform which is frontwardly and integrally extended from said rear door knob, and has a first reinforcing surface arranged to bias against said inner surface of said latch guider while said lock enhancing device is sandwiched between said knob assembly.

 5. The lock, as recited in claim 4, wherein said front protective housing
20 comprises a reinforced base having a predetermined thickness, and a side boundary peripherally extended therefrom to define a receiving cavity between said reinforced base and said side boundary for receiving said actuation unit, wherein said reinforced base has a second reinforcing surface arranged to bias against said inner surface of said latch guider while said lock enhancing device is sandwiched between said knob assembly.

25 6. The lock, as recited in claim 5, further having a plurality of aligned operation slots, each having a cross sectional shape of a cross, formed on said latch actuation member and said driving member of said locking rotor, wherein said actuation unit comprises a linking pin rearwardly extended between said actuation unit and said locking rotor through said operation slots in order to actuate said latch actuation member
30 to slidably move in said locked and unlocked positions by rotatably driving said linking pin.

7. The lock, as recited in claim 6, wherein said side boundary has a predetermined thickness which is capable of sustaining a predetermined impact applied thereto without being distorted.

8. The lock, as recited in claim 7, wherein said latch guider is
5 perpendicularly extended from said reinforcing member so as to provide a maximum resisting torque to an external force applied to said knob assembly

9. The lock, as recited in claim 8, wherein said reinforcing member has a cylindrical exterior shape which is adapted to evenly distribute an externally applied force to said knob assembly to the door panel.

10. The lock, as recited in claim 6, wherein said latch guider is
10 perpendicularly extended from said reinforcing member so as to provide a maximum resisting torque to an external force applied to said knob assembly.

11. The lock, as recited in claim 10, wherein said reinforcing member has a
15 cylindrical exterior shape which is adapted to evenly distribute an externally applied force to said knob assembly to the door panel.

12. The lock, as recited in claim 1, wherein said rear knob frame of said knob
assembly comprises a rear door knob adapted to bias against the rear side of the door
panel, and a locking rotor, which is rotatably mounted on said rear door knob, and has a
driving member extended to couple with said door latch assembly to actuate said locking
20 latch assembly, wherein said rear knob frame further comprises a reinforcing platform
which is frontwardly and integrally extended from said rear door knob, and has a first
reinforcing surface arranged to bias against said inner surface of said latch guider while
said lock enhancing device is sandwiched between said knob assembly.

13. The lock, as recited in claim 12, wherein said front protective housing
25 comprises a reinforced base having a predetermined thickness, and a side boundary
peripherally extended therefrom to define a receiving cavity between said reinforced base
and said side boundary for receiving said actuation unit, wherein said reinforced base has
a second reinforcing surface arranged to bias against said inner surface of said latch
guider while said lock enhancing device is sandwiched between said knob assembly.

14. The lock, as recited in claim 13, further having a plurality of aligned operation slots, each having a cross sectional shape of a cross, formed on said latch actuation member and said driving member of said locking rotor, wherein said actuation unit comprises a linking pin rearwardly extended between said actuation unit and said locking rotor through said operation slots in order to actuate said latch actuation member to slidably move in said locked and unlocked positions by rotatably driving said linking pin.

15. The lock, as recited in claim 13, wherein said side boundary has a predetermined thickness which is capable of sustaining a predetermined impact applied thereto without being distorted

16. The lock, as recited in claim 14, wherein said side boundary has a predetermined thickness which is capable of sustaining a predetermined impact applied thereto without being distorted.

17. The lock, as recited in claim 16, wherein said latch guider is perpendicularly extended from said reinforcing member so as to provide a maximum resisting torque to an external force applied to said knob assembly.

18. The lock, as recited in claim 17, wherein said reinforcing member has a cylindrical exterior shape which is adapted to evenly distribute an externally applied force to said knob assembly to the door panel.

19. The lock, as recited in claim 14, wherein said latch guider is perpendicularly extended from said reinforcing member so as to provide a maximum resisting torque to an external force applied to said knob assembly.

20. The lock, as recited in claim 19, wherein said reinforcing member has a cylindrical exterior shape which is adapted to evenly distribute an externally applied force to said knob assembly to the door panel.